

The eggs of some Chilean phasmids (Phasmida: Pseudophasmatidae)

John T.C. Sellick, 31 Regent Street, Kettering, Northants, NN16 8QG, U.K.

Abstract

Descriptions are given of the eggs of two species of *Agathemera* and three of *Bacunculus*.

Key words

Phasmida, Pseudophasmatidae, *Agathemera*, *Bacunculus*, eggs.

Introduction

Camousseight and Bustamente (1991) published a scanning electron microscope study of the eggs of four genera of Chilean phasmids *Agathemera* Stål, *Bacunculus* Burmeister, *Paraprisopus* Redtenbacher and *Xeropsis* Redtenbacher. Whilst three species of *Agathemera* and four of *Bacunculus* were listed in their introduction, the subsequent account and photographs identified the eggs to genus level only. The *Paraprisopus* was not identified to species level; the other species was *Xeropsis crassicornis* (Philippi). This paper is abbreviated here to CB1991.

Ariel Camousseight later sent me material of five of the species and the purpose of this paper is (a) to describe the egg characters of the individual species *Agathemera crassa* (Brunner), *A. elegans* (Philippi), *Bacunculus blanchardi* Camousseight, *B. granulicollis* (Blanchard) and *B. phyllopus* (Gray), (b) to illustrate the conventional dorsal and lateral views of these eggs (which was not done in CB1991) and (c) to present some observations which differ from those in CB1991. The description conventions are those set out in Sellick (1997).

Egg descriptions

Eggs were examined under a light stereo-microscope and measured with an eyepiece graticule. In the figures the scale line in each case represents one millimetre.

Agathemera Stål (tribe Anisomorphini)

The eggs of this genus are quite unlike the eggs of other Anisomorphini known (3 species of *Anisomorpha* and one of *Autolyca*); I have suggested that the tribe is polyphyletic (Sellick in press). Eggs of the other four genera of this tribe are not known. The eggs of the two species described here are very similar in size, proportions, colour and micropylar plate. For this genus CB1991 cited *talla* (height) of 6.4mm (n=20). This would seem to be the same as their *largo* (length) in the cited ratio and *alto* (height) defined in their *Figura 1*, itself an error as their figure is supposed to be derived from my early paper (Clark, 1979) defining dimensions. This dimension is length and should be measured from the midpoint of the capsule rim (Sellick, 1997). No other dimensions are cited, except for *largo/ancho* (length/width) as 7:3, which is not one of the conventional ratios, and an opercular angle of $27.5^\circ \pm 0.5^\circ$, cited as positive, whereas it is in fact negative (their *Figura 1* showed a left and not a right lateral view, hence the error). Their ratio of 7:3 equals a width/length ratio of 43%. In *A. crassa* this would be 48-51% and in *A. elegans* 52-57% using the conventional definition of length. The species figured in CB1991 appears to be *A. crassa*. *A. millipunctata* Redtenbacher was also included in the CB1991 account but without specific details. More recently Camousseight (1995) has described two more species of Chilean *Agathemera*, but included no egg descriptions.

Agathemera crassa (Brunner) (Fig. 1)

Based on 8 eggs. The whole capsule and operculum is an almost uniform smooth very dark brown or black. The micropylar plate has a conspicuous raised edge and an obvious Y-

shaped cup. Dimensions: length 5.8-6.1mm; width 2.85-2.95mm; height 3.0-3.3mm; opercular width 2.4-2.65mm; opercular height 2.4-2.9mm; micropylar plate length 6.0-6.1mm; micropylar plate width 1.05mm; height/length 50-55%, width/height 87-98%; opercular angle *c.* -25°. This gives an apparent anomaly of a micropylar plate longer than the capsule, since the dorsal edge of the capsule is longer than the mid-length. The "length" taken in the dorsal view is *c.* 6.5mm, and is even longer if the operculum is included.

The internal micropylar plate matches the external plate in shape and is closed, but has a complex structure (Fig. 1C). The outer part of this plate is dark and this can merge with the main internal capsule surface so that the plate appears to be open, with a median line (Fig. 1D). It is presumably this that led CB1991 to illustrate an open plate for this genus, though that of the next species is clearly closed.

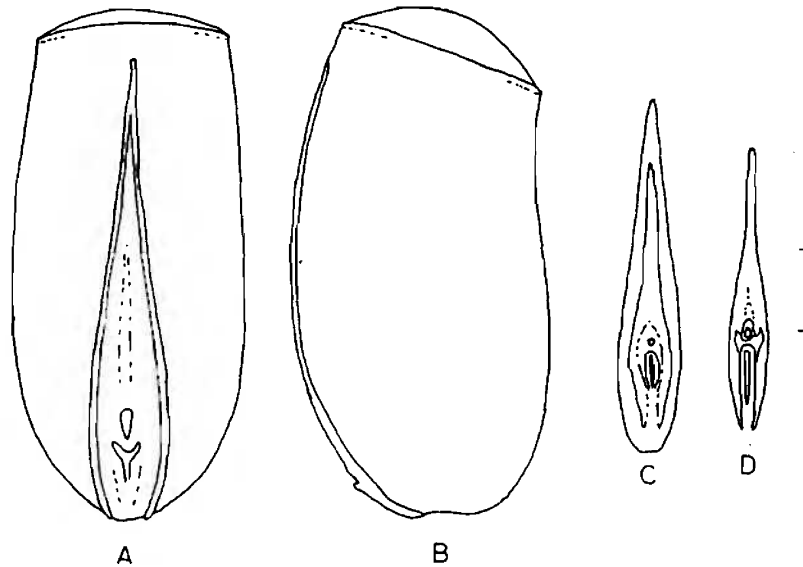


Figure 1. *Agathemera crassa*. A. dorsal, B. Lateral, C. Full internal plate, D. Internal plate with outer area obscure, giving false "open" appearance.

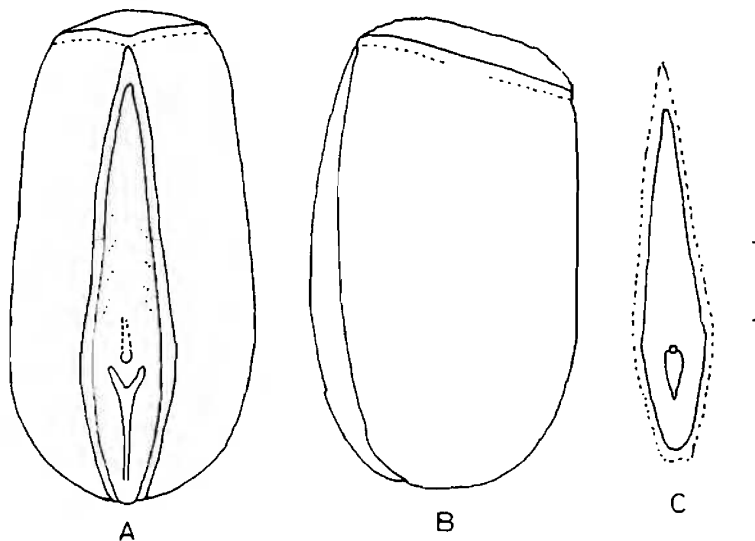


Figure 2. *Agathemera elegans*. A. Dorsal, B. Lateral, C. Internal plate.

***Agathemera elegans* (Philippi) (Fig. 2)**

Based on 3 eggs. The capsule and operculum are again dark brown/black, with a very slight sculpturing. The edge of the micropylar plate, which is less raised than in the previous species, may be slightly paler than the rest of the capsule. Dimensions: length 5.5-6.0mm; width 3.1-3.15mm; height 3.4-3.5mm; opercular width 2.0mm; opercular height 2.8mm; micropylar plate length 5.5-6.0mm; micropylar plate width 1.15-1.25mm; height/length 57-63%, width/height 90-91%; opercular angle *c.* -20°.

The internal micropylar plate is a typical closed type, with a gap posterior to the micropylar stalk. The plate is surrounded by a dark edge.

***Bacunculus* Burmeister (tribe Bacunculini)**

The three species described here, with *B. cornutus* (Philippi) and *Xeropsis crassicornis* (Philippi) are the only ones of this tribe whose eggs are known. *B. cornutus* was included in the CB1991 account, but no specific details were given. *Xeropsis* was transferred from Xerosomatini to Bacunculini in CB1991. There are no other genera in the tribe. CB1991 cite *talla* 3.3mm and *largo/ancho* 9:5 as the only dimensions for *Bacunculus*. The species they illustrate is not *B. blanchardi*, which differs significantly from the other two species described here, particularly in its opercular structures. The internal plate they illustrate is similar to that of *B. phyllopus*.

***Bacunculus blanchardi* Camousseight (Fig. 3)**

Based on 3 eggs. As in all three species examined, the capsule colour is variable. In this case it is uniform but varies from pale straw to a mid brown. There is a distinct dorsal bulge in the centre of which is a shallow depression. The rim of the depression merges into a general warty sculpturing of the capsule. The elliptical micropylar plate is surrounded by a raised area, which extends across the posterior pole. The operculum lacks the capitular structures seen in the other species, being slightly raised in the centre with a surrounding irregular ring, the whole being almost flat. Dimensions: length 3.6-3.7mm; width 2.1mm; height 4.35-4.4mm; opercular width 1.2-1.4mm; opercular height 1.3-1.4mm; micropylar plate width 0.3-0.35mm; micropylar plate length 0.3-0.35mm; height/length 64-67%, width/height 88-89%; opercular angle *c.* 0°.

The internal micropylar plate is closed, with an unusual median line-like extension which follows the line of the extension of the area around the exterior plate across the posterior pole.

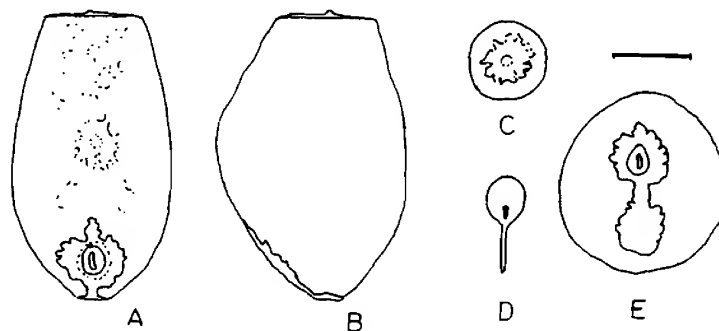


Figure 3. *Bacunculus blanchardi*. A. Dorsal, B. Lateral, C. Operculum, D. Internal plate, E. Posterior.

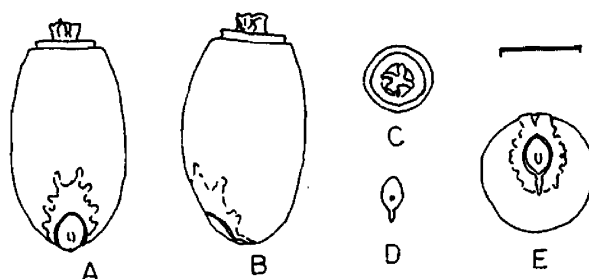


Figure 4. *Bacunculus granulicollis*. A. Dorsal, B. Lateral, C. Operculum, D. Internal plate, E. Posterior.

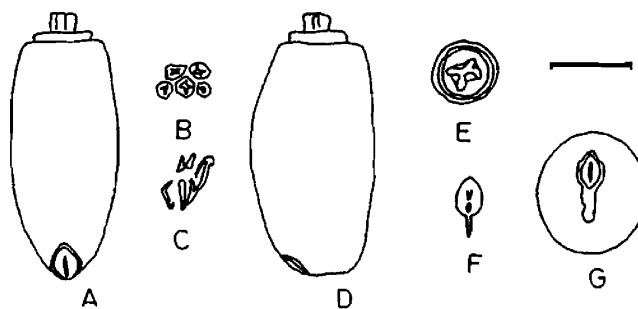


Figure 5. *Bacunculus phyllopus*. A. Dorsal, B. & C. Types of surface sculpturing, D. Lateral, E. Operculum, F. Internal plate, G. Posterior.

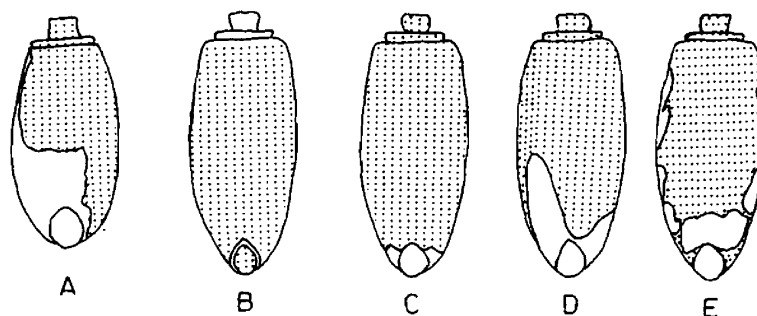


Figure 6. Colour patterning in *Bacunculus*: A. *B. granulicollis*, B-E. *B. phyllopus*.

***Bacunculus granulicollis* (Blanchard) (Figs. 4 & 6A)**

Based on 2 eggs. One of these eggs is uniformly a very pale straw; the other has about half of the capsule black and the other half almost white (Fig. 5A). There is a slightly raised area around the micropylar plate, with a distinct line extending over the posterior pole. The operculum has a raised rim and a central capitulum with three or four arms. Dimensions: length 2.6-2.65mm; width 1.35-1.5mm; height 1.5mm; opercular width 0.9-1.0mm; opercular height 0.9-1.0mm; capitular length 0.3mm; micropylar plate width 0.35-0.45mm; micropylar plate length 0.45-0.5mm; height/length 57-58%; width/height 90-100%; opercular angle c. -3°.

The internal micropylar plate is similar to that of the preceding species, but with a much shorter median line-like extension.

***Bacunculus phyllopus* (Gray) (Figs. 5 & 6B-E)**

Based on 34 eggs. There is a great range of colour in these eggs. Amongst those uniformly coloured some are a uniform pale cream, some a mid brown and some dark brown. There is a common variety which is brown but with a cream operculum/capitulum and a cream rim to the micropylar plate (Fig. 6B). Others show various patterns of cream and brown, some of which are illustrated in figures 6C-E. There is no wide raised area around the micropylar plate, but there is an extension over the posterior pole. The operculum and capitulum are similar to those of the previous species. Dimensions: length 2.6-3.15mm; width 1.4-1.6mm; height 1.55-1.65mm; opercular width 0.65-0.75mm; opercular height 0.65-0.75mm; capitular length 0.3-0.5mm; micropylar plate width 0.35-0.45mm; micropylar plate length 0.4-0.5mm; height/length 50-54%; width/height 88-100%; opercular angle almost zero.

The internal micropylar plate is like that of the other two species.

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